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Sustainable1

Supply chain sustainability practices in Japan

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About this report

This research report explores trends and practices in sustainable supply chain management among Japanese companies in the context of the Asia-Pacific region and other global regions. The report's content is the result of analysis conducted by S&P Global Sustainable1 on data and results collected in the S&P Global Corporate Sustainability Assessment, with feedback and review provided by Japan Exchange Group.

S&P Global Sustainable1

S&P Global Sustainable1 is the central source for sustainability intelligence from S&P Global. Sustainable1 matches customers with sustainability products, insights and solutions to help meet their needs. Our coverage across global markets combined with in-depth sustainability intelligence provides financial institutions, corporations and governments with expansive insight on business risk, opportunity, and impact as we work towards a sustainable future. Our data and well-informed point of view on critical topics like energy transition, climate resilience, positive impact and sustainable finance allow us to go deep on the details that define the big picture so customers can make decisions with conviction. To learn more, please visit: www.spglobal.com/sustainable1

Japan Exchange Group

JPX is the main financial instruments exchange operator in Japan, with subsidiaries including Tokyo Stock Exchange (cash equity markets), Osaka Exchange and Tokyo Commodity Exchange (derivative markets), Japan Securities Clearing Corporation (clearing), and JPX Market Innovation & Research (data and digital services). Positioning sustainability as a key focus of its management strategy, it works to assist the creation of a sustainable capital market and society through encouraging sustainable practices and information disclosure at its listed companies and providing ESG products and services to investors.

Acknowledgments

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Foreword

Geopolitical, regulatory and climate challenges are creating a difficult operating environment for many companies. This uncertainty signals risk for companies tasked with managing business relationships across global supply chains. But as S&P Global explores in this report, supported by Japan Exchange Group, it also creates opportunity for companies with robust supply chain management practices.

Managing supply chains is no easy feat. An increase in protectionist trade practices could test the sustainability of companies' supply chains. Changes in trade policies may lead companies to pivot to new suppliers or have fewer suppliers to choose from, complicating due diligence and engagement efforts. Supply chain constraints could also lead to higher product costs, making it more difficult for companies to ensure access and affordability.

And then there are the impacts of climate change: For many companies, supply chains are growing increasingly vulnerable to disruption from physical climate hazards.

Although supply chains face growing uncertainty, many companies are still in the early stages of adopting policies and practices that could reduce that risk, data from S&P Global Sustainable1 shows.

As an island nation and one of the world's largest economies, Japan is a notable case study in how to navigate these challenges. For this report, we looked into how Japanese companies are approaching sustainable supply chain management. We have paired S&P Global data with local market perspectives to bring you the research and insights that follow.

At S&P Global, we seek to bring together data and market insights to help clients understand how to navigate the changing sustainability landscape — both the risks and the opportunities. We hope you'll find the report that follows valuable as you seek to build sustainable supply chain management practices that will withstand whatever the future holds.

Thomas Yagel
Head of S&P Global Sustainable1

Introduction

Supply chains often span the globe, and a single large company may count on hundreds or even thousands of suppliers. That can make managing risk at every level of the supply chain a significant challenge. For Japanese companies, supply chain management can take on even more importance: As an island nation, Japan faces additional challenges in terms of securing commodities and other inputs via trade, and it faces growing impacts from climate change physical risks.

Japan is the fourth-largest national economy in the world in terms of GDP, according to the International Monetary Fund. Its supply chain-reliant manufacturing industry, including the production of electronics and automotive components and vehicles, makes up about 20% of total GDP, according to the Japan External Trade Organization.

Companies around the world, including in Japan, are turning their attention to their supply chains to identify potential sustainability issues. In line with increased expectations from investors and some regulatory regimes, companies are also looking to disclose their strategies for reducing exposure to sustainability-related risks. More companies are recognizing that the sustainability performance of their supply chains can have reputational and, in some cases, regulatory consequences.

To take stock of sustainable supply chain management in Japan and across different regions, S&P Global Sustainable1 analyzed data collected in the S&P Global Corporate Sustainability Assessment (CSA) on over 3,000 companies included in the Dow Jones Best-in-Class World Invited Universe, which are publicly traded companies globally that are assessed in the CSA and invited to participate.

We found that many Japanese companies are taking steps to assess, disclose and address their supply chain risks. Moreover, the adoption of supply chain management practices is generally more widespread in Japan than in the surrounding Asia-Pacific region. Companies in Japan are behind their peers globally in the practice of screening suppliers for potential sustainability-related risks. In terms of value chain-related climate strategy, Japanese companies are global leaders in setting net-zero targets, but fewer of them include Scope 3 in those targets than in other regions. However, consideration of biodiversity and nature at the supplier level appears more advanced among Japanese companies, which more often conduct upstream biodiversity assessments and more often include biodiversity in the codes of conduct they require suppliers to follow.

Report methodology and scope

This report analyzes trends in data collected through the S&P Global Corporate Sustainability Assessment (CSA), an annual evaluation of companies' sustainability practices across an average of 22 topics. The sample for this analysis is composed of 3,183 companies in the Dow Jones Best-in-Class World Invited Universe, which are publicly traded companies globally that are assessed in the CSA and invited to participate.[1] Sample sizes in subsections and charts in this report vary based on the number of companies assessed on specific topics in the CSA. Sample sizes are also included in charts depicting Japanese sectors where relatively few companies are present in the analysis universe.

The supply chain management topic of the CSA asks companies to describe their policies related to managing sustainability issues such as climate, business ethics, human rights and other topics in their suppliers' operations.

This analysis also considers trends in the CSA's section on materiality, in which companies can indicate which issues they consider to be most material from an internal value creation perspective and/or an external impact perspective.

The aim and scope of this report is to define and discuss key aspects of supply chain management and share, at a high level, what a robust supply chain sustainability program looks like at high-performing companies in different industries and regions.

This report also provides regional and sector-based data on several elements of supply chain management that companies can use to benchmark their approach, including:.

- Supplier codes of conduct, which are one of the first things a company can do to reduce supplier sustainability risk;
- Supplier screening practices related to identifying which suppliers are important and most likely to need more detailed assessment;
- Trends in corporate net-zero and climate strategy, with an emphasis on Scope 3 emissions, which are the greenhouse gas (GHG) emissions that occur in a company's value chain, including from suppliers;
- Trends in biodiversity risk assessment, given that environmental, biodiversity and nature impacts often occur in earlier tiers of supply chains.

1. The Dow Jones Sustainability Indices were renamed Dow Jones Best-in-Class Indices effective Feb. 10, 2025.

Key drivers of supply chain management

Regulatory pressure

With the backdrop of the UN Guiding Principles for Business and Human Rights, published in 2011, jurisdictions around the world have taken steps in recent years to shore up their supply chains, speed up domestic production and reduce supply chain exposure to risks related to human rights, labor or the environment. Some have also established laws or regulations requiring companies to mitigate sustainability risks in their supply chains, particularly with respect to human rights and forced labor. These include Modern Slavery Acts in the UK (2015) and Australia (2018), the Fighting Against Forced Labour and Child Labour in Supply Chains Act (2023) in Canada and the Uyghur Forced Labor Prevention Act (2021) in the US. Below are some more details on rules affecting Japanese companies.

Japan

Japan's Economic Security Promotion Act, which was expanded in March 2024, designates a number of materials, advanced electric components and critical minerals as "critical products" that the country will take steps to ensure the stable supply of, including by diversifying sources, stockpiling materials, increasing domestic production and finding alternatives for these items. The list includes batteries and semiconductors.

Japan has also taken a clear position on its expectations for companies regarding human rights throughout corporate supply chains. Japan launched a five-year National Action Plan (NAP) on Business and Human Rights in 2020 that refers to 85 measures its government plans to undertake regarding business activity and human rights. To date, government-led action on supply chain responsibility has focused on educating business on aligning with UN principles rather than setting mandatory requirements.

In the early years of the NAP, several Japanese ministries, including the Ministry of Foreign Affairs and the Ministry of Justice, issued information and research to help guide companies in improving their human rights practices. In 2022, the Inter-Ministerial Committee on Policy Promotion for the Implementation of Japan's National Action Plan on Business and Human Rights issued a set of guidelines for respecting human rights in supply chains. Additional case studies and guidance materials were published in 2023.

In a review of the implementation of the NAP published in May 2024, the Inter-Ministerial Committee noted that the Japanese government has focused on encouraging business to adhere to the UN Guiding Principles on Business and Human Rights through workshops and training sessions.

EU

The EU in May 2024 passed the European Critical Raw Materials Act, which sets targets to increase domestic production of strategic raw materials. Also in 2024, the EU enacted the Corporate Sustainability Due Diligence Directive (CSDDD), which created a due diligence duty for companies to prevent, end or mitigate their adverse impact on human rights and the environment across their upstream and downstream chain of activities. The rule has a global reach because it applies both to European companies and to non-European companies that generate a certain amount of revenue within the EU.

As passed in May 2024, CSDDD will apply to EU companies with more than 5,000 employees and net annual global revenues of more than €1.5 billion and non-EU companies that generate more than €1.5 billion of revenues in the EU, as of July 2028. Implementation was initially set to take place in 2027, but application of the directive has been delayed by one year following approval of proposed changes to the EU's sustainability reporting rules.

The Commission is seeking to simplify reporting rules to cut firms' administrative costs. The simplification proposal for the CSDDD would limit the amount of value chain information large companies are required to obtain from their suppliers, resulting in less granular data about supply chains. The proposals may be subject to change and may not be approved until 2026, leaving many companies in regulatory limbo.

EU regulation on prohibiting goods made with forced labor, in force since 2024, allows EU member states to investigate companies suspected of selling goods in the EU produced with forced labor in their supply chains. Companies that are found to be non-compliant must withdraw their products from the EU market and can be fined.

Disclosure standards

The establishment of the International Sustainability Standards Board (ISSB) in 2021 amid a global push for consistent sustainability-related disclosures has also had an impact on the regulation of supply chains.

The ISSB issued its first two standards, IFRS S1 and IFRS S2, in June 2023. IFRS S1 requires companies to disclose sustainability-related financial information, including current and anticipated sustainability-related risks in their value chain. Companies must also provide information about disruption to their supply chains and explain how supply chain-related information might have a material impact on financial results. IFRS S2, which covers climate-related disclosures, requires companies to disclose "current and anticipated effects of climate-related risks and opportunities on the entity's business model and value chain." Companies also have to report Scope 3 GHG emissions that occur throughout their value chains.

This framework is pulling many jurisdictions toward global alignment on disclosures. Fifteen jurisdictions have adopted the standards on a voluntary or mandatory basis as of March 31, 2025, with reporting starting as of Jan. 1, 2024, or Jan. 1, 2025. Another 21 jurisdictions are planning to adopt the standards in the future.

The Sustainability Standards Board of Japan (SSBJ) issued its own sustainability standards based on the ISSB standards in March 2025. Companies can currently apply them on a voluntary basis, but the SSBJ said it developed the standards on the assumption that they "would eventually be required, under the Japanese securities laws and regulations, to be applied by entities listed on the Prime Market of the Tokyo Stock Exchange."

Market forces

Investors are also putting more pressure on companies to improve the sustainability of their supply chains. In their latest research into supply chain sustainability, the MIT Center for Transportation & Logistics and the Council of Supply Chain Management Professionals wrote that among the 10 major sources of pressure on companies to make their supply chains more sustainable, investor pressure ranked first.[2] The level of pressure from investors over the four years this study has been conducted has risen 25%, more than any other source, including from regulatory changes.

Similarly, many consumers continue to show a preference for goods and services offered by companies with sustainability credentials. Trade disruptions and shortages brought about during the COVID-19 pandemic put supply chains front and center for many consumers. In the September 2024 Deloitte Global Consumer Signals survey, 47% of the 20,000 consumers surveyed globally said they had purchased a sustainable good within the last four weeks. A strong majority (67%) of these survey respondents also said they believe climate change is an emergency — a strong response that could influence consumer behavior.

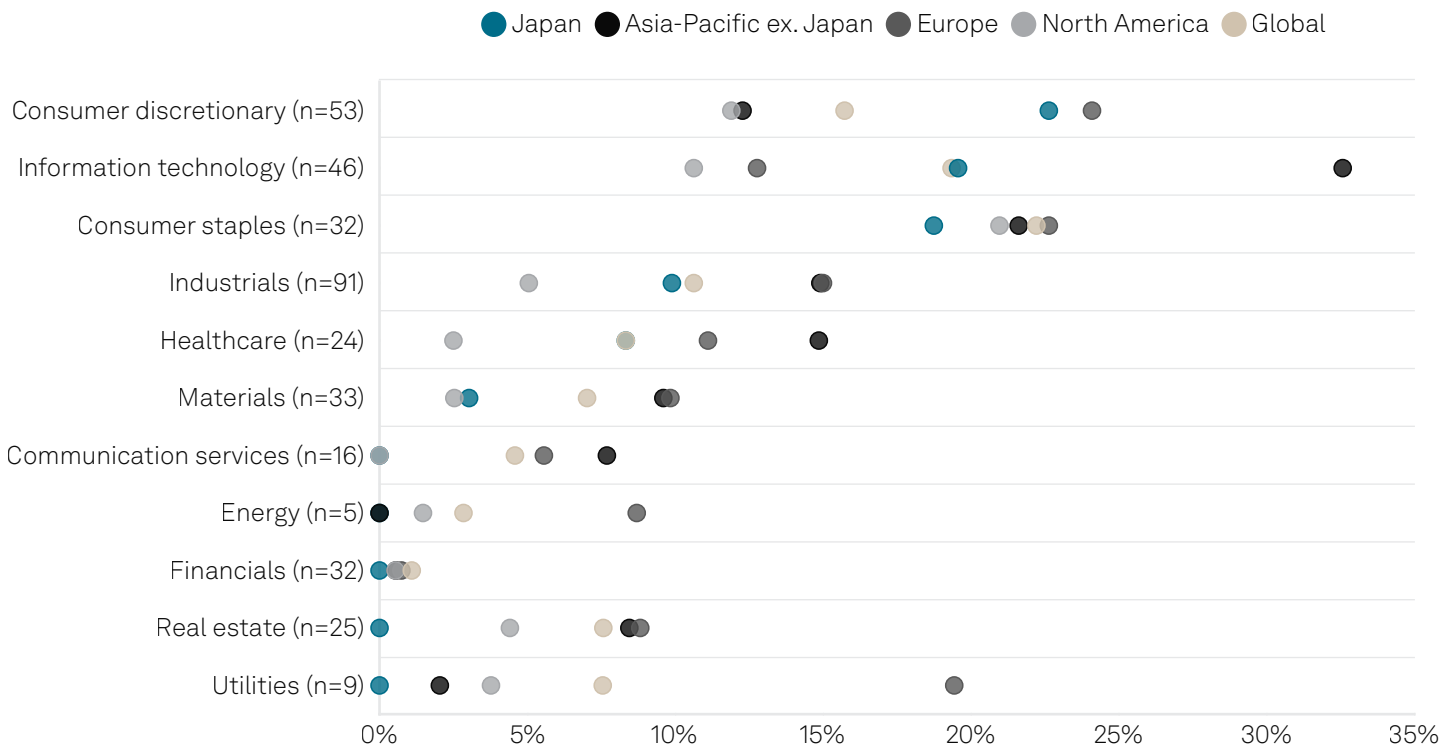
2. Velázquez Martínez, J.C., and Arnold, V. "State of Supply Chain Sustainability 2024" (Cambridge, Mass. and Lombard, Ill.: MIT Center for Transportation & Logistics and Council of Supply Chain Management Professionals, September 2024). https://sustainable.mit.edu/wp-content/uploads/2025/02/2024_State-Sustainable-Supply-Chains-MIT-CSCMP_Feb2025.pdf

Supply chain management and materiality

While there is growing pressure on businesses to assess supply chain risks, only some companies consider supply chain management to be one of their top material issues, according to data from the 2024 S&P Global Corporate Sustainability Assessment (CSA).

Consumer-facing sectors consider supply chain management to be a top material issue

Percentage of companies by sector and region in the Dow Jones Best-in-Class World Invited Universe that chose the supply chain management topic as one of their top material issues



Data as of Jan. 17, 2025.
Results based on responses from 3,183 companies assessed in the 2024 S&P Global Corporate Sustainability Assessment (CSA).
Sample sizes indicated on Y-axis are for Japan.
Sample size totals are Japan (366), Asia-Pacific ex. Japan (1,088), Europe (711) and North America (1,161).
Latin America and Africa are not depicted due to small sample size.
The 2024 CSA question on material issues reflects a double materiality approach.
Companies are able to provide up to three issues that are material from an internal enterprise value creation perspective and up to two issues that are material in terms of impacting external stakeholders.
Source: S&P Global Sustainable1.

In this part of the CSA, companies can select up to three material issues they consider most important for enterprise value creation and up to two material issues that are most important to them in terms of impacting external stakeholders. Companies select these issues from a list of 22 options, which include topics like corporate governance and ethics; climate risks; human capital management; customer relations; and cybersecurity, among others such as supply chain management. A company choosing other issues as one of these top selections does not indicate that other issues are unimportant to it, only that it views another issue as a higher priority. Recent research from S&P Global Sustainable1 delves into materiality in more detail.

Of the companies assessed in the 2024 CSA as part of the Dow Jones Best-in-Class World Invited Universe, only 10% selected supply chain management as a top material issue. A slightly higher share of companies in Japan (11%), in the wider Asia-Pacific region (12%) and in Europe (12%) selected supply chain management as a top material issue. The issue was selected less often (6%) among companies in North America.

Many of the companies that see supply chain management as the most important are in consumer-facing sectors. In Japan, the top three sectors that selected supply chain management as a top material issue are consumer discretionary (23%), information technology (20%) and consumer staples (19%).

Analysis of CSA data shows consumer-facing sectors in Japan and globally face many sustainability-related supply chain risks.

Companies in the consumer discretionary sector manage extensive supply chains across a wide range of manufacturing and services businesses such as automobiles and components, household durables, textiles and apparel, as well as hotels, restaurants and distributors and retailers of consumer discretionary products. Many of these products have the potential for significant supply chain labor risks in production facilities such as textile mills and other production facilities or agricultural raw material production sites.

Information technology companies provide software and technology services and include manufacturers and distributers of hardware and equipment — including semiconductors, which the Japanese government has targeted as a critical product. Environmental issues as well as human rights concerns can arise at the stage in these manufacturers' supply chains when key minerals are mined. Mining can also have a significant impact on biodiversity, which can then hinder the ability of nature to provide other critical ecosystem services that companies depend on.

The supply chains of consumer staples companies are particularly vulnerable to climate impacts and to the potential for biodiversity loss to impact access to the raw materials they need to produce and distribute food, beverages and other non-durable household goods and personal products.

Global supply chain management practices

Managing sustainability risks throughout complex supply chains can be challenging, and companies with a clear view of the potential risk exposure embedded in their supply chains typically use a systematic approach to supply chain management. Common elements of a robust supply chain management process for identifying and mitigating supply chain risk include:

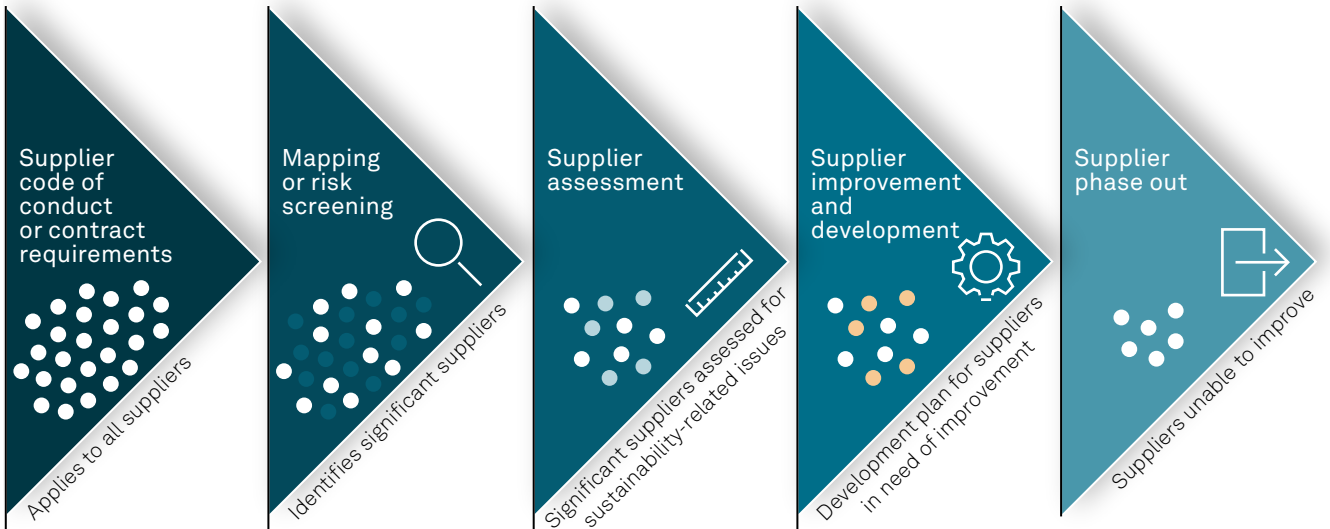
- A code of conduct that applies to all suppliers, creating a baseline expectation for behavior and policies related to stakeholders and the environment.
- Supplier screening that can identify which suppliers are the most important to a company's operations and therefore merit a more detailed assessment of risk.
- In-person or desk-based remote assessments of those suppliers deemed more likely to pose sustainability-related risks.
- Suppliers found to pose potential sustainability-related risk during an assessment can then undergo a development plan for improvement, and suppliers unable to complete a development plan can be phased out to eliminate the risk exposure.

Board or executive management oversight of this process is also a common practice among companies with strong supply chain management.

In addition to implementing these programs, public disclosure of a company's supply chain management practices is an important part of creating transparency and building trust with customers, investors and other stakeholders. This can be done as part of a company's normal reporting cycle, such as in an annual report or sustainability report, or on a dedicated section of its public website.

In this section, we provide an overview of a full supply chain management process, including what supplier management looks like in practice among companies with particularly high supply chain management scores in the CSA.

Sustainable supply chain management



This describes the principles, values, standards and rules of behavior that guide the supplier's decisions, procedures and systems in a way that (a) contributes to the welfare of its key stakeholders and (b) respects the rights of all constituents affected by its operations. It usually includes at least three components: human rights and labor, environment and business ethics.

Supplier screening is systematic desk research on suppliers' risk of having negative ESG impacts as well as their business relevance. It considers available data sources such as country, sector or commodity ESG risks, spending, business relevance, etc. Methodology development and screening processes can be conducted by the company itself or with the support of external specialists. Screening can be considered the initial step in identifying potential sustainability risks in the supply chain; it is followed by assessing suppliers. At this stage, the company is not likely to be engaging directly with a supplier to screen them.

A process in which suppliers are evaluated to obtain information on their practices to measure and monitor their performance. The assessment process can be carried out to reduce costs, mitigate risks and drive improvement. The benefits of carrying out this process include increased performance visibility, aligning customer and supplier business practices, and risk mitigation.

Supplier information and training
Provides the supplier with information or training on the purchasing company's supplier ESG program. The content can include specific inputs on one topic, inputs on multiple ESG topics and best practices or information on the company's assessment and development process.

Supplier access to ESG benchmarks
This involves benchmarking a supplier against how other suppliers are performing. This can include performance information on specific areas or case studies on how other suppliers achieved that level of performance.

Supplier support (remote/onsite) on implementation of corrective actions
The company provides guidance and support on the implementation of corrective and improvement actions. This can happen remotely or through supplier on-site visits.

In-depth technical support programs to build capacity and ESG performance in suppliers
Comprehensive capacity building programs to systematically improve supplier practices and performance on specific ESG topics (e.g., energy efficiency, chemical management, health & safety management, working hours reduction) through training, baseline assessments, collaborative system development and progress measurement. Capacity building is defined as the process of developing and strengthening the knowledge, skills, instincts, abilities, processes, and resources that organizations need to survive, adapt, and thrive in a fast-changing world.

Such programs go beyond corrective action support and usually take six or more months to implement. These technical support programs are long-term and sustained over time with the aim of improving ESG performance rather than solely implementing action plans.

Source: S&P Global Sustainable1.

Practices of top performers

In practice, companies across a range of sectors and around the world are at different stages of adopting a full suite of supply chain management practices. Based on CSA assessments, companies that are top-performing leaders in supply chain management in their respective industries have implemented each step of identifying and mitigating sustainability risk. For example, an Asia-Pacific auto manufacturer and a European luxury apparel producer that were their industry's top performers have implemented major aspects of supply chain management (supplier code of conduct, board or executive oversight, supplier screening, supplier assessment and supplier development). They also reported that they assessed 100% of the suppliers they

identified as significant, and further, all of their suppliers that were found to have substantial actual or potential negative impacts agreed to a corrective action plan.

Companies with lower supply chain management scores were missing different elements of a complete approach to managing sustainability in their supply chains. A semiconductor manufacturer in North America, for example, requires suppliers to follow a code of conduct and has a publicly disclosed supplier assessment process, but it lacks board or executive responsibility for its supplier sustainability program and does not have a publicly disclosed supplier development process. In its CSA assessment, it was not able to disclose what percentage of its significant suppliers it had assessed. Overall, establishing a supplier code of conduct is a common entry point for companies looking to make their supply chains more sustainable. In terms of becoming an industry leader on supply chain sustainability, however, a code of conduct without leadership oversight, assessment or development does not constitute a strong supply chain management program.

This report will take a deep dive into the early steps companies can take to build sustainability into their supply chains — codes of conduct and screening practices — and examine climate and environmental elements of supply chain management in more detail.

Practices of leading companies in supply chain management

Company description	Supply chain management criterion score percentile*	Publicly available supplier code of conduct	Board or executive team oversight of supplier ESG program	Suppliers screened based on ESG aspects	Publicly available supplier assessment process	Publicly available supplier development process	Percentage of significant suppliers assessed	Percentage of suppliers found to have substantial actual or potential negative impacts and agreed to corrective action plans
Automobile manufacturer	100	✓	✓	✓	✓	✓	100	100
Luxury apparel brand	100	✓	✓	✓	✓	✓	100	100
Food & staples retailing company	98	✓	✓	✓	✓	✓	70.8	100
Electronic parts manufacturer	98	✓	✓	✓	✓	✓	78	100
Food and candy production company	98	✓	✓	✓	✓	✓	97	100
Semiconductor manufacturer	74	✓	✗	✗	✓	✗	NA	NA
Consumer staples company that specializes in beverages	63	✓	✗	✓	✗	✓	NA	NA
Automobile manufacturer	65	✓	✗	✓	✓	✓	NA	NA
Groceries and general merchandise retailer	58	✗	✗	✓	✓	✓	NA	NA
Telecommunications company	44	✓	✗	✗	✗	✗	NA	NA

Region Asia-Pacific, Europe, Latin America, North America

Data as of April 22, 2025.
* Supply chain management criterion score percentile within the company's industry.
NA = not available. The company was not able to provide information on this question and/or the information was not publicly available.
Chart based on data and scores from the 2024 S&P Global Corporate Sustainability Assessment (CSA).
Source: S&P Global Sustainable1.

Supplier codes of conduct

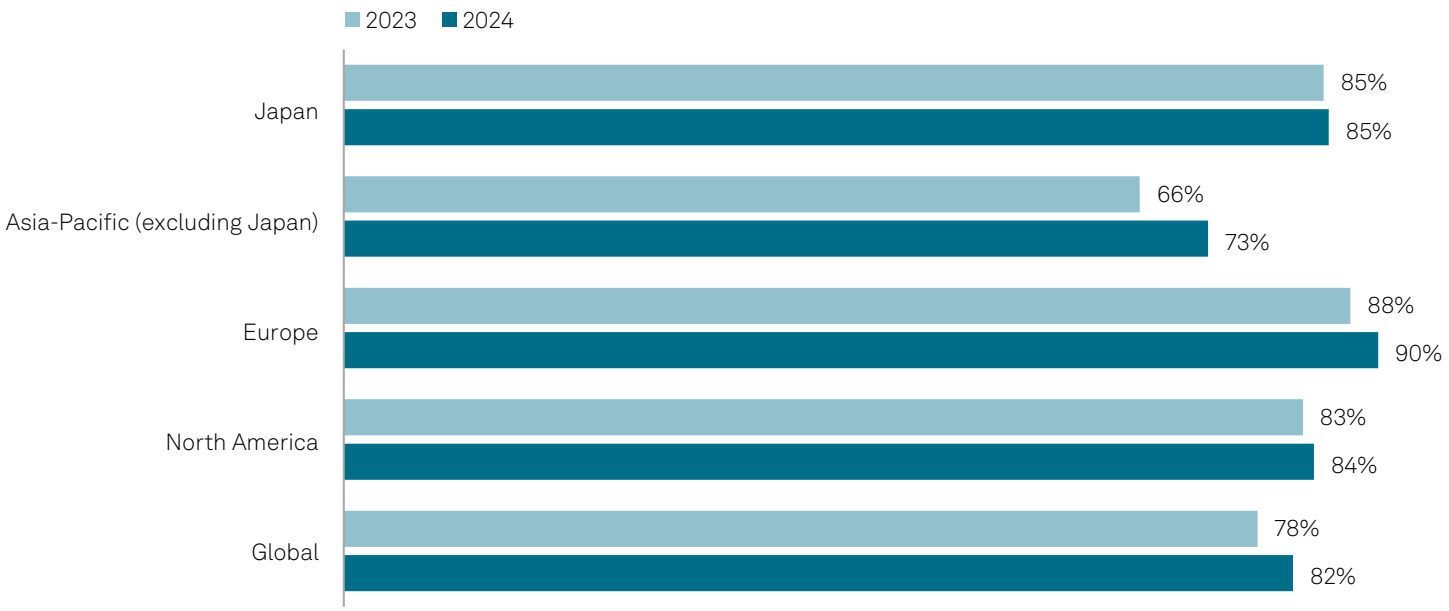
An early step companies can take to reduce supply chain risk is to create codes of conduct covering such topics as human rights and labor practices, environmental issues and business ethics for suppliers to follow. Publicly disclosing these codes of conduct is an important signal to investors, customers and regulators that a company takes supply chain sustainability seriously.

CSA data shows that companies around the world are increasingly disclosing their supplier codes of conduct. Global disclosures among companies in the Dow Jones Best-in-Class World Invited Universe climbed to 82% in the 2024 CSA from 78% in the 2023 CSA. Disclosure rates remained unchanged in Japan compared to the prior year at 85%, slightly above the global rate.

The 2024 CSA disclosure rate in Japan was higher than the rest of the Asia-Pacific region (73%) and North America (84%). Europe continued to have the highest level of supplier code of conduct disclosure.

Disclosure of supplier codes of conduct is more common in Japan than other parts of Asia-Pacific

Percentage of companies in the Dow Jones Best-in-Class World Invited Universe that publicly disclose a supplier code of conduct



Data as of Jan. 17, 2025.
Results based on responses from companies assessed in the 2024 and 2023 S&P Global Corporate Sustainability Assessment.
The 2024 sample size is 2,655, and the 2023 sample size is 2,656.
The CSA defines a supplier code of conduct as describing the principles, values, standards, or rules of behavior that guide the decisions, procedures, and systems of the supplier in a way that contributes to the welfare of its key stakeholders and respects the rights of all constituents affected by its operations.
It usually includes at least three components: human rights and labor, environment, and business ethics.
Source: S&P Global Sustainable1.

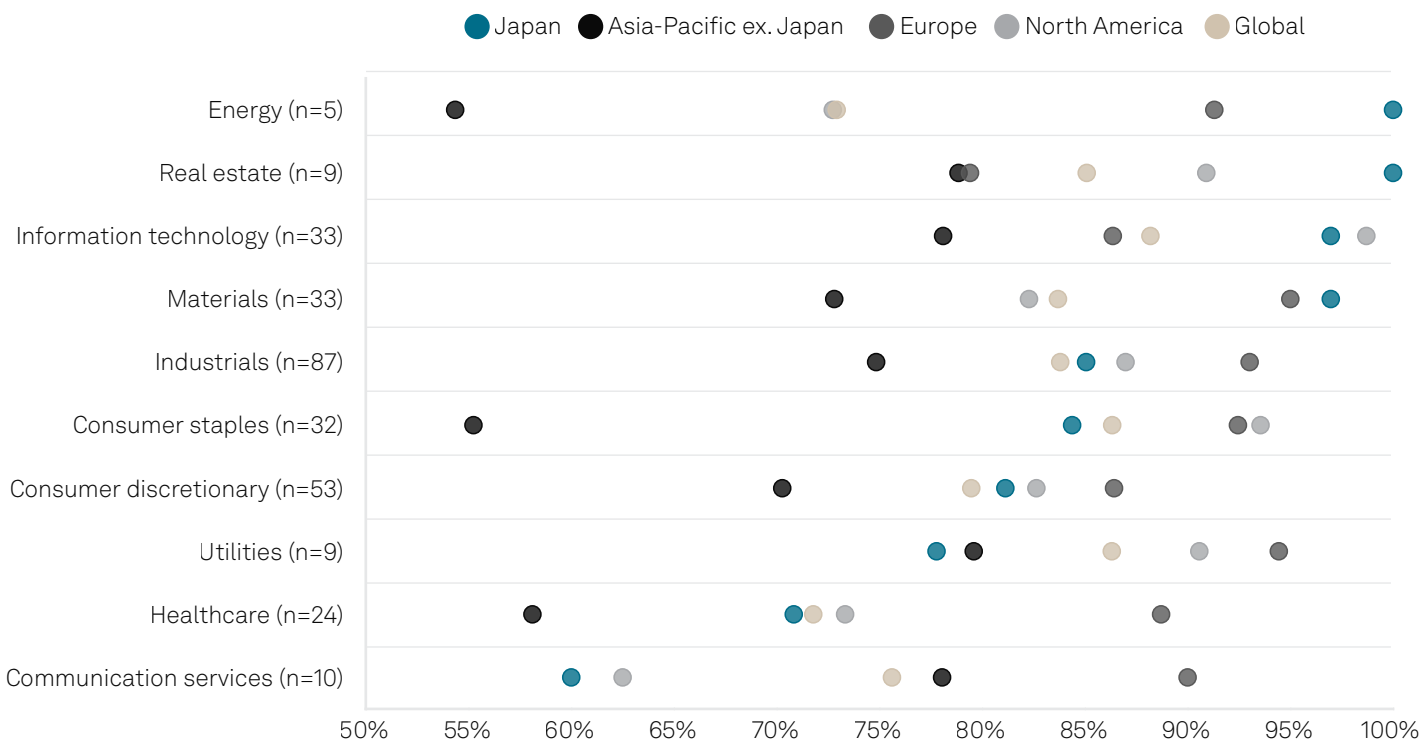
The CSA defines a supplier code of conduct as the commitments a company requires from its suppliers in terms of values, standards or rules of behavior that respect the rights of stakeholders affected by the supplier's operations.

Disclosure practices for supplier codes of conduct vary more by sectors within Japan and regionally and do not always correlate with whether a certain sector views supply chains as a top material issue. In some regions and sectors, supply chain management can be widely considered a top material issue, but disclosing a code of conduct may not be common practice.

For example, the consumer staples sector had the highest percentage of companies globally (22%) that view supply chain management as a top material issue. The share of consumer staples companies that disclose their codes of conduct ranges widely from as high as 94% in North America and 84% in Japan to as low as 55% in the rest of the Asia-Pacific region.

Supplier code of conduct disclosure varies among sectors across regions

Percentage of companies by sector and region in the Dow Jones Best-in-Class World Invited Universe that publicly disclose a supplier code of conduct



Data as of Jan. 17, 2025.
Results based on responses from 2,655 companies assessed in the 2024 S&P Global Corporate Sustainability Assessment (CSA).
Sample sizes indicated on Y-axis are for Japan.
Sample size totals are Japan (295), Asia-Pacific ex. Japan (863), Europe (530) and North America (834).
Latin America and Africa are not depicted due to small sample size.
The CSA defines a supplier code of conduct as describing the principles, values, standards, or rules of behavior that guide the decisions, procedures, and systems of the supplier in a way that contributes to the welfare of its key stakeholders and respects the rights of all constituents affected by its operations.
It usually includes at least three components: human rights and labor, environment, and business ethics.
Source: S&P Global Sustainable1.

Practices among sectors in Japan also vary, with the top four being real estate (100%), energy (100%), information technology (97%) and materials (97%), while the two lowest sectors are healthcare (71%) and communication services (60%). The sample sizes in Japan are particularly small for two of those top-performing Japanese sectors: There were five Japanese energy companies and nine Japanese real estate companies in the Dow Jones Best-in-Class World Invited Universe that were also assessed on supply chain code of conduct disclosure, and in both sectors, all companies disclosed codes of conduct.

Among the companies that disclose codes of conduct, the vast majority include measures related to human rights in their published supplier codes of conduct. This trend holds true in Japan as well.

For example, most Japanese companies' supplier codes of conduct include requirements related to child labor (95%), forced labor (95%), occupational health and safety (93%), working conditions (88%) and discrimination and harassment (82%).

The practices of Japanese companies differ from global trends on environmental and business ethics requirements for suppliers.

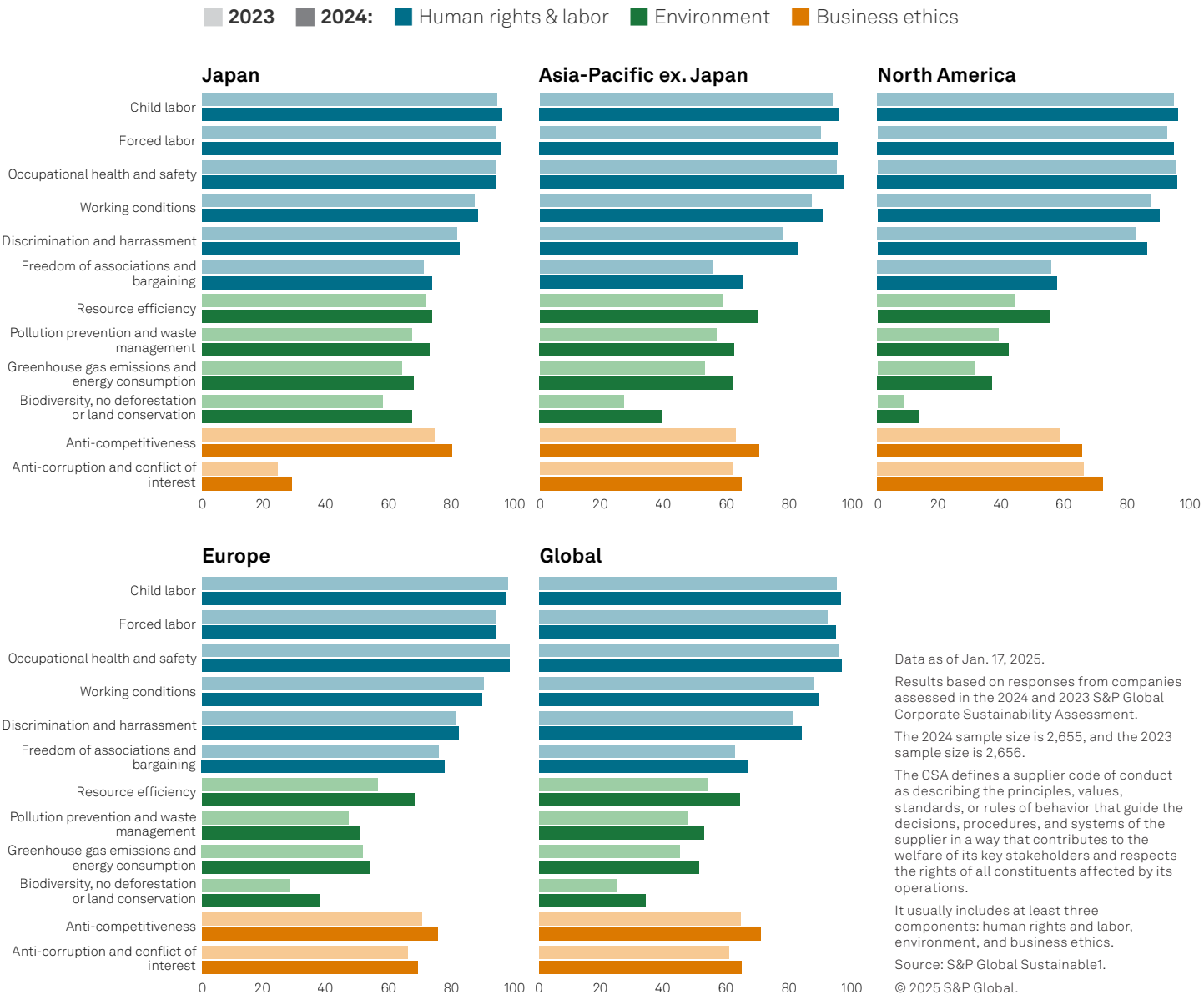
In general, companies in Japan establish expectations on environmental issues more often than companies across the rest of the Asia-Pacific region and other regions. This is especially true on the topic of biodiversity, which appears in 67% of the codes of conduct of companies in Japan versus only 39% of companies across the rest of the Asia-Pacific region, 38% in Europe and 13% in North America.

On other environmental topics, nearly three-quarters of all companies in Japan in the 2024 CSA established expectations for suppliers regarding resource efficiency and pollution prevention, which is a higher percentage than the global rate and other regions. And 67% of companies in Japan include measures on GHG emissions and energy consumption in their supplier codes of conduct, compared to a global rate of 51%.

When it comes to business ethics issues, Japan aligns with broader global practices in that most companies include the topic of anti-competitiveness in their codes of conduct. However, only 29% of companies in Japan include requirements related to anti-corruption and conflict of interest concerns. This topic is commonly included in the codes of conduct of companies in the rest of the Asia-Pacific region (64%), North America (72%) and Europe (68%).

Biodiversity is a greater focus in Japanese firms' supplier codes of conduct, while anti-corruption is a less common aspect

Percentage of companies by region in the Dow Jones Best-in-Class World Invited Universe that include the following topics in their supplier codes of conduct



Data as of Jan. 17, 2025.

Results based on responses from companies assessed in the 2024 and 2023 S&P Global Corporate Sustainability Assessment.

The 2024 sample size is 2,655, and the 2023 sample size is 2,656.

The CSA defines a supplier code of conduct as describing the principles, values, standards, or rules of behavior that guide the decisions, procedures, and systems of the supplier in a way that contributes to the welfare of its key stakeholders and respects the rights of all constituents affected by its operations.

It usually includes at least three components: human rights and labor, environment, and business ethics.

Source: S&P Global Sustainable1.

Supplier screening

Another supply chain management practice is to screen suppliers to identify which are significant in terms of business relevance and potential exposure to sustainability risks. Screening can also help a company identify whether the risk in its supply chain is concentrated in certain suppliers. Once a company has identified significant suppliers, it can focus monitoring and development efforts on those suppliers with the highest risk for negative impacts and greatest business relevance.

Supplier screening is less widespread in Japan than in the rest of the Asia-Pacific region and compared to companies in Europe and North America. Moreover, the gap between Japan and the rest of the world widened in 2024 as screening became more popular in other regions, CSA data shows.

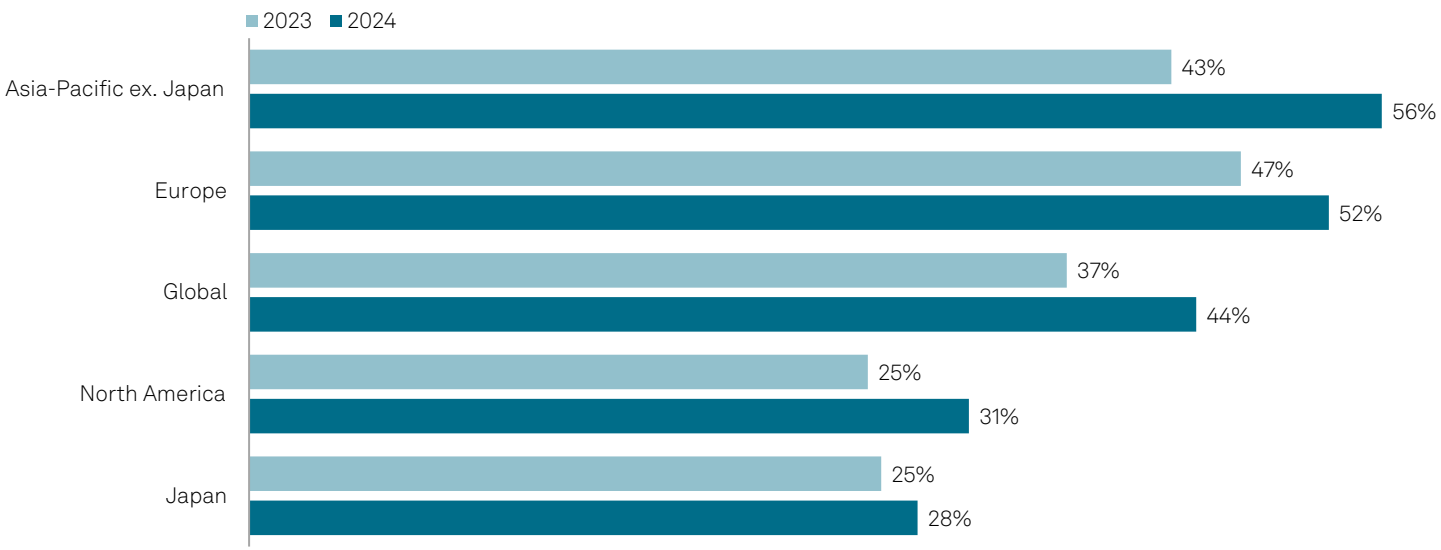
In the 2024 CSA, only 28% of assessed companies in Japan conducted supplier screening, versus 56% of companies in the wider Asia-Pacific region, 52% in Europe and 31% in North America.

Of the companies that do screen suppliers for specific risks, the issues that companies in Japan screen for generally align with the rest of the world, with some exceptions.

Supplier screening as defined in the CSA can include environmental, social and governance aspects, as well as business relevance and commodity-, sector-, or country-specific risks.

Supplier screening is less widespread in Japan than other regions

Percentage of companies by region in the Dow Jones Best-in-Class World Invited Universe that conduct supplier screening and publicly disclose their screening approach



Data as of Jan. 17, 2025.
Results based on responses from companies assessed in the 2024 and 2023 S&P Global Corporate Sustainability Assessment.
The 2024 sample size is 2,468, and the 2023 sample size is 2,644.
The CSA defines supplier screening as systematic desk research of suppliers' risk for negative ESG impacts and their business relevance.
Screening can be considered the initial step to identify potential sustainability risks in the supply chain and is then followed by assessing suppliers.
Source: S&P Global Sustainable1.

Environmental screening aspects can include the risk for negative impacts related to GHG emissions, energy consumption, water consumption, resource efficiency, pollution, waste or biodiversity impacts. Social screening aspects are related to human rights and labor rights in many of the same areas that codes of conduct often cover. And governance aspects can include the risk of corruption, bribery, conflicts of interest, or anti-competitive practices — similar to the business ethics components of supplier codes of conduct.

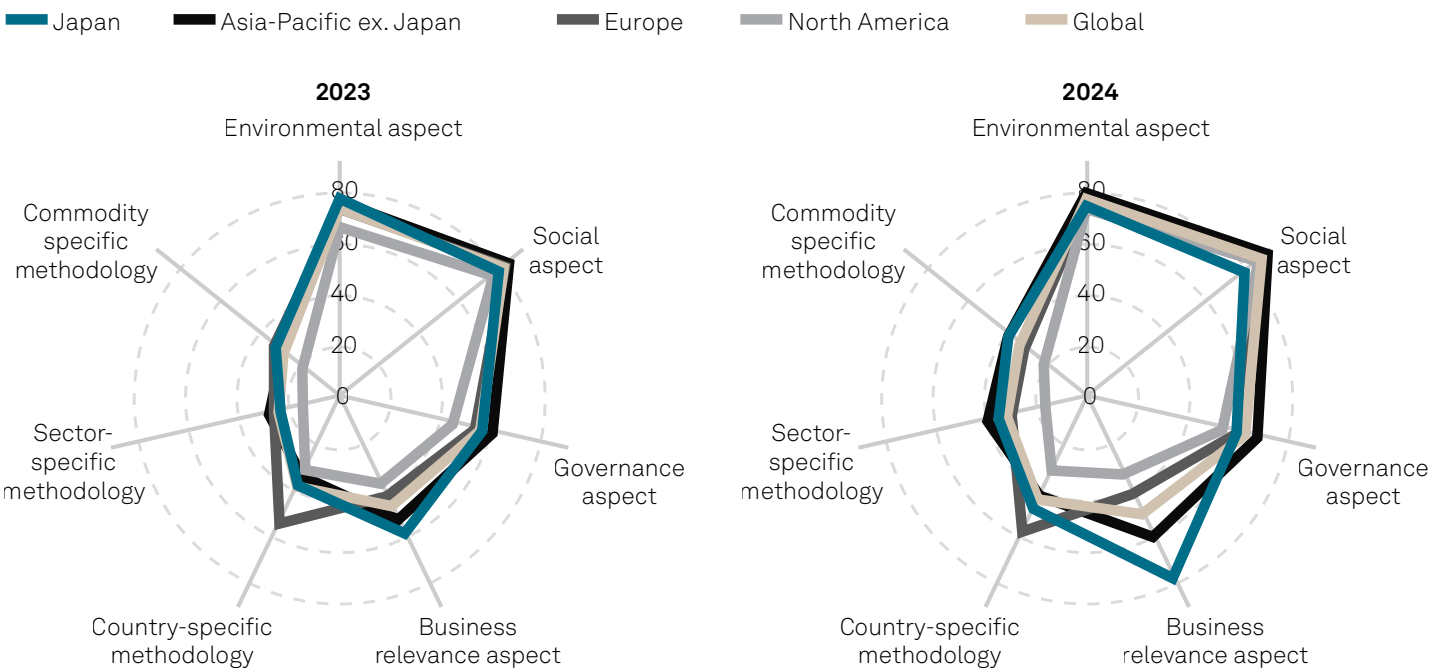
Business relevance aspects help identify the most significant businesses in a company's supply chain based on total spend and volume supplied or an assessment of how difficult it would be to substitute suppliers for important products or materials.

In the 2024 CSA, most Japanese companies included four aspects in their supplier screening practices: social (79%), business relevance (78%), environmental (75%) and governance (60%).

Compared to companies in the rest of the Asia-Pacific region, Japanese companies generally screen for business relevance and governance issues more often and social aspects less often. Heightened attention to screening for business relevance in Japan could reflect the Japanese economy's heavy reliance on imports and identifying the sources of inputs that would be difficult to substitute if disrupted.

Supplier screening practices in Japan are in line with other regions

Percentage of companies by region in the Dow Jones Best-in-Class World Invited Universe that include the following aspects in their supplier screening approach



Data as of Jan. 17, 2025.
Results based on responses from companies assessed in the 2024 and 2023 S&P Global Corporate Sustainability Assessment that have a supplier screening process.
The 2024 sample size is 1,142, and the 2023 sample size is 966.
The CSA defines supplier screening as systematic desk research of suppliers' risk for negative ESG impacts and their business relevance.
Screening can be considered the initial step to identify potential sustainability risks in the supply chain and is then followed by assessing suppliers.
Supplier screening approaches that describe sustainability risks in general are represented in the "social" aspect, in addition to screening approaches that describe particular social topics.
Source: S&P Global Sustainable1.

Climate risk in supply chains

In addition to navigating evolving geopolitics and general supply-demand dynamics, companies now must also adapt their supply chain strategies to account for growing climate-related risks, from extreme weather events such as heatwaves and storms to worsening chronic issues such as droughts, water stress and coastal flooding driven by sea-level rise.

Asia was the region most impacted by natural disasters in 2023, according to the State of the Climate in Asia 2023 report published by the World Meteorological Organization (WMO), which is the most recent edition available. Floods and storms were the primary drivers of extreme weather-related economic losses in the region, while heatwaves are becoming increasingly severe, the WMO noted.

Island nations are especially vulnerable to storm risks over the coming decades as global warming exacerbates climate hazards. In Japan, 100% of GDP is likely to be affected by storms by 2050 under a slow transition scenario (SSP3-7.0), according to research from S&P Global Ratings. That compares to storm-related GDP exposure of 40% in the US and about 1% in most of Europe under the same scenario. The research also found that by 2050, Japan faces 100% GDP exposure to pluvial flooding (severe rainfall) and that 99% of Japan's population is at risk of exposure to extreme heat.

The potential disruptions to trade and general economic activity caused by climate physical risks such as these make supply chain management even more important.

Managing climate risk in the supply chain is a complex task, but basic elements can include:

- setting a net-zero target that includes supply chain emissions
- including upstream and downstream exposures in climate risk assessments
- performing biodiversity risk assessments to gauge how the supply chain impacts local ecosystems

Climate scenarios

The climate change scenarios known as Shared Socioeconomic Pathways (SSPs) were developed by the UN's Intergovernmental Panel on Climate Change (IPCC). The IPCC established the SSPs as a set of scenarios for projecting GHG emissions and temperature changes. The SSPs incorporate broad changes in socioeconomic systems, including global population growth, economic growth, resource availability and technological developments.

SSP1-2.6 is a low emissions scenario in which the world shifts gradually but consistently toward a more sustainable path with a global temperature increase of 1.8 degrees C (1.3 degrees C-2.4 degrees C) by the end of the century.

SSP2-4.5 is predominantly used in this analysis. This is a medium climate change scenario that contemplates strong mitigation, in which total GHG emissions stabilize at current levels until 2050 and then decline to 2100. In this scenario, global average temperatures rise by 2.7 degrees C (2.1 degrees C-3.5 degrees C) by the end of the century.

SSP3-7.0 is a moderate-to-high emissions scenario, akin to a slow transition, in which countries increasingly focus on domestic or regional issues at the expense of environmental concerns. This SSP projects a global temperature increase of 3.6 degrees C (2.8 degrees C-4.6 degrees C) by the end of the century.

SSP5-8.5 is a high emissions (limited mitigation) scenario. This SSP projects a global temperature increase of 4.4 degrees C (3.3 degrees C-5.7 degrees C) by the end of the century.

Net-zero targets and supply chain emissions

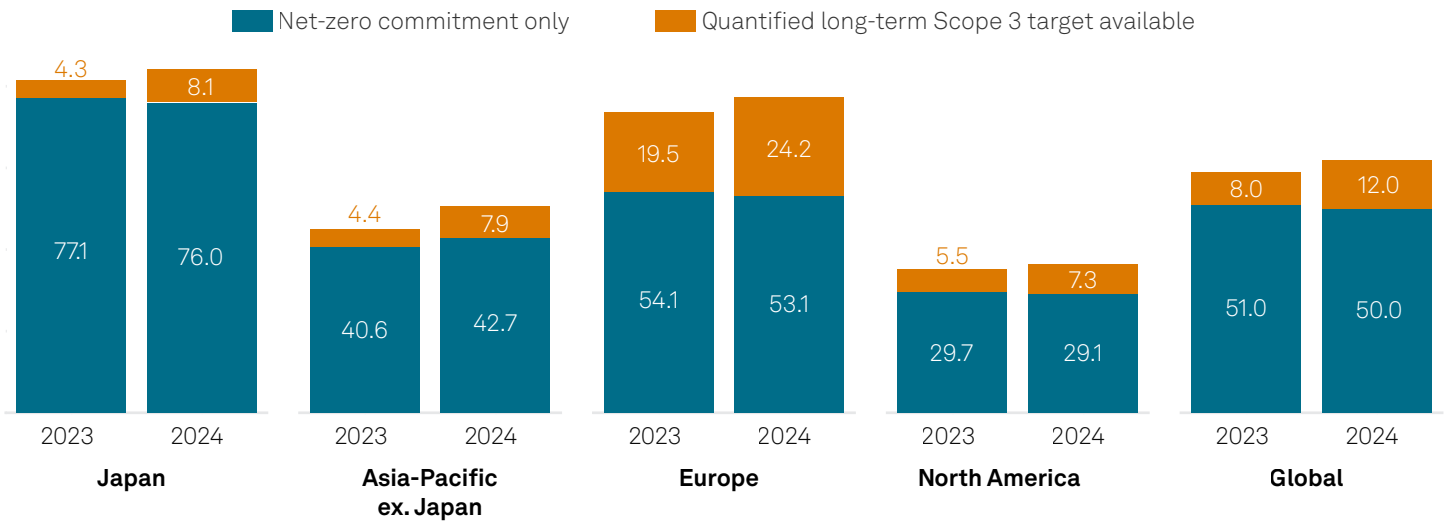
Apart from choosing their suppliers carefully and providing them with environmental, social and governance practices to follow, companies must also reckon with the impacts of climate change on their value chains. Disruptions to supply chains from acute severe weather events and chronic climate risks are expected to increase with every degree of global warming, the Intergovernmental Panel on Climate Change warned in its Sixth Assessment Report, released in 2023.

Reducing the magnitude of global warming by lowering emissions is the best way to reduce the scale of climate physical impacts. Scope 3 emissions that occur up and down a company's value chain are the largest source of GHGs for most sectors. As a result, decarbonizing supply chains can be one of the most effective ways for the corporate world to help mitigate climate change. Setting net-zero emissions targets that include Scope 3 emissions covering supply chain emissions can send an important signal to suppliers to establish similar targets.

2024 CSA data shows that most companies in the Dow Jones Best-in-Class World Invited Universe globally (62%) have a net-zero target, but only a small share of companies (12%) include Scope 3 emissions. The gap is wider among companies in Japan: While a high share of Japanese companies have net-zero targets (84%), only about 8% include Scope 3 in their net-zero commitments.

Net-zero commitments are high in Japan, but they rarely include quantified Scope 3 targets

Percentage of companies by region in the Dow Jones Best-in-Class World Invited Universe with net-zero commitments and Scope 3 targets



Data as of Jan. 8, 2025.
Results based on responses from companies assessed in the 2024 and 2023 S&P Global Corporate Sustainability Assessment (CSA).
The 2024 sample size is 2,789, and the 2023 sample size is 2,765.
The CSA counts "quantified long-term Scope 3 targets" as those that conform to the Science-Based Targets initiative requirement for net-zero commitments to include disclosing a 90% target for Scope 3.
Source: S&P Global Sustainable1.

That said, more companies are including Scope 3 targets in their net-zero plans as data collection, regulations and standards, and supplier engagement practices expand. For example, the percentage of companies in Japan with a Scope 3 net-zero target roughly doubled in the 2024 CSA from the prior year.

Government-level targets can also help drive private sector adoption. According to the UN, 107 countries, collectively representing about 82% of global emissions, had announced net-zero pledges as of June 2024. For its part, Japan aims to achieve carbon neutrality by 2050, and on Feb. 18, 2025, updated its Strategic Energy Plan, which sets a new target of reducing GHGs by 73% in 2040. The draft plan published in December 2024 targeted renewable energy generation to comprise 40% to 50% of the electricity mix by fiscal year 2040-41, up from 22.9% in fiscal year 2023-24. Thermal power, which can include coal, liquified natural gas and oil, would decrease from 68.8% of the current supply mix to 30% to 40% of the total.

Assessing upstream and downstream climate risks

In addition to tackling emissions, companies can also assess and disclose their climate-related risks. These assessments can cover a range of climate-related risks, including physical risks, such as the impact to physical assets from severe weather events or chronic climate hazards like water stress and extreme heat. Companies can also assess their exposure to how regulations or market forces are evolving to address climate change — and whether they are prepared for emerging requirements or expectations regarding climate risk management.

Most companies in the Dow Jones Best-in-Class World Invited Universe (84%) have a process for identifying, assessing and disclosing their climate risks, with the process adopted by nearly all assessed Japanese companies (98%), according to the 2024 CSA.

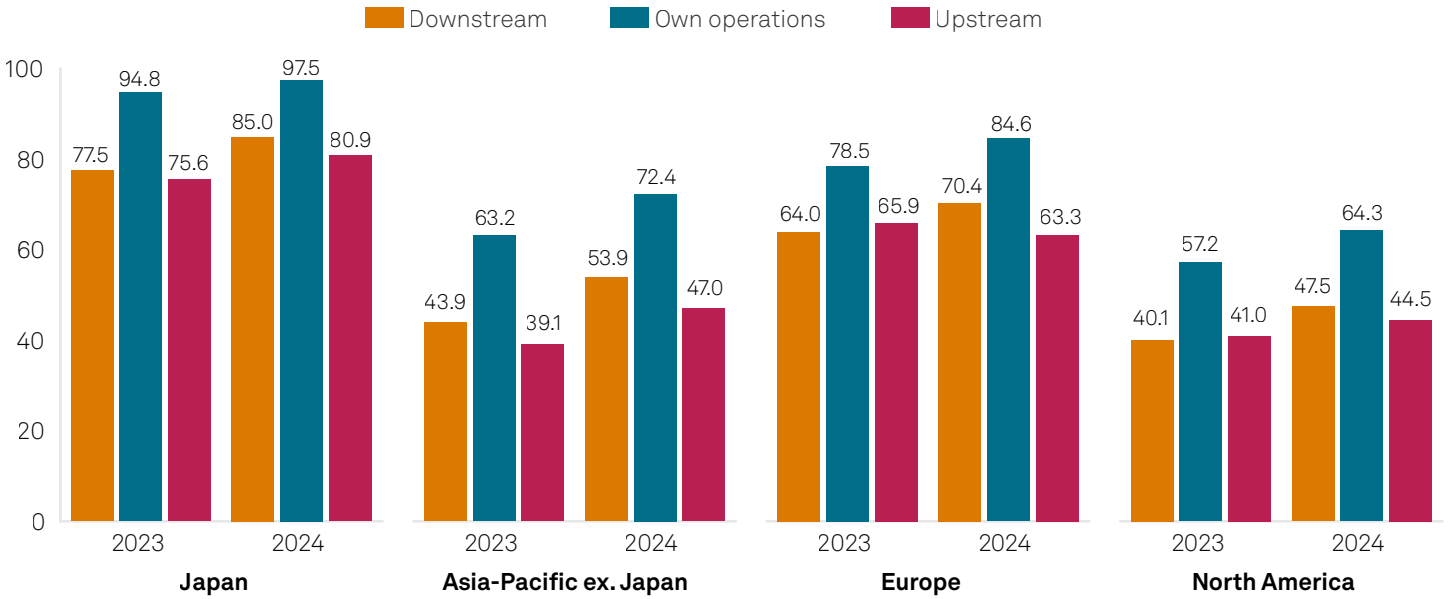
But while most companies are looking for how these risks impact their direct operations, far fewer assess the potential climate risks in their supply chains. Japan is an outlier in this regard. Compared to other regions and the rest of Asia-Pacific, Japanese companies' climate risks assessments include upstream and downstream risks more often.

Disclosure of how climate-related risks may impact companies is becoming more common, particularly as international reporting frameworks gain steam. Dozens of jurisdictions around the world have signaled they will adopt the two voluntary disclosure standards published in 2023 by the ISSB. As of December 2024, 13 jurisdictions had adopted the standards and another 22 jurisdictions, including Japan, expect to adopt them in the future, according to research by S&P Global Sustainable1. The ISSB standards include the assessment of climate risks and opportunities. Japan published standards that align with those of the ISSB in March 2025.

Other jurisdictions in the Asia-Pacific region, such as Hong Kong, India, Malaysia, Singapore, South Korea and Taiwan, are also looking to adopt mandatory disclosure standards aligned with those of the ISSB.

Japanese companies' climate risk assessments more often include upstream activities

Percentage of companies by region in the Dow Jones Best-in-Class World Invited Universe performing climate risk assessments that cover the following levels of their value chains



Data as of Jan. 8, 2025.
Results based on responses from companies assessed in the 2024 and 2023 S&P Global Corporate Sustainability Assessment.
The 2024 sample size is 3,323, and the 2023 sample size is 3,293.
Source: S&P Global Sustainable1.

Biodiversity risk assessments

Biodiversity-related expectations can be included in a company's supplier codes of conduct, but many companies in Japan also perform their own biodiversity risk assessments.

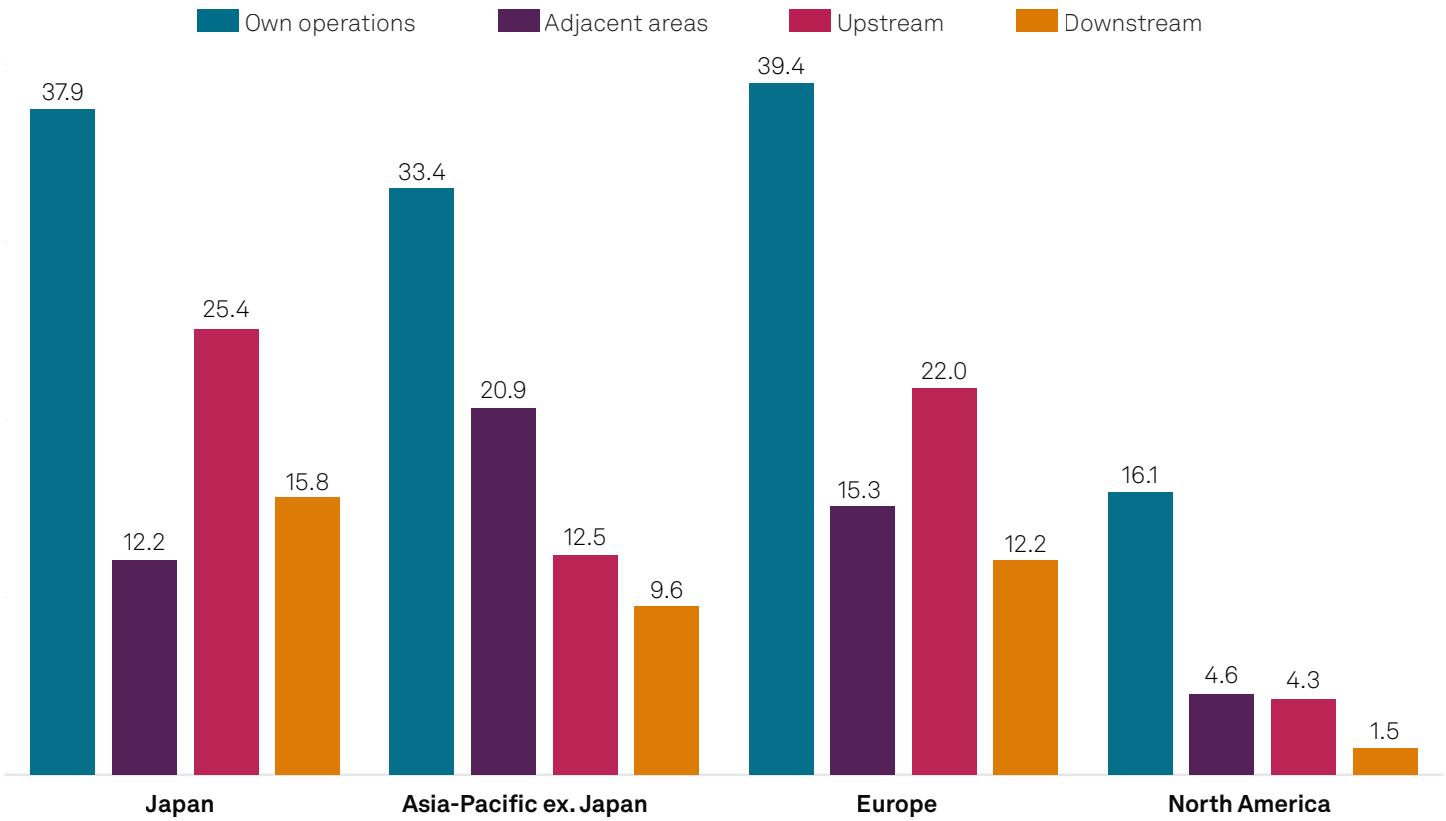
Biodiversity loss is being driven by human activity and accelerated by climate change, which has supply chain implications. Japan in its 2023 National Biodiversity Strategy and Action Plan noted that biodiversity loss in the country has prompted a reduction in certain ecosystem services and diminished the availability of resources for fisheries, forestry and other agriculture, thus driving an increase in related imports.

Ecosystem services provide food, water and raw materials and modulate climate, hydrological, ecological and soil processes, and those functions depend to a large extent on the preservation of healthy and biodiverse ecosystems.

In addition to establishing a national biodiversity strategy and action plan, which aims to halt and reverse biodiversity loss in Japan by 2030, Japan's Ministry of the Environment published Guidelines for Private Sector Engagement on Biodiversity in 2023. The guidelines call on companies to identify biodiversity-related risks and opportunities for business activities. The guidelines are based on the recommendations of the Taskforce on Nature-related Financial Disclosures (TNFD).

Biodiversity risk assessment coverage in Japan is similar to Europe

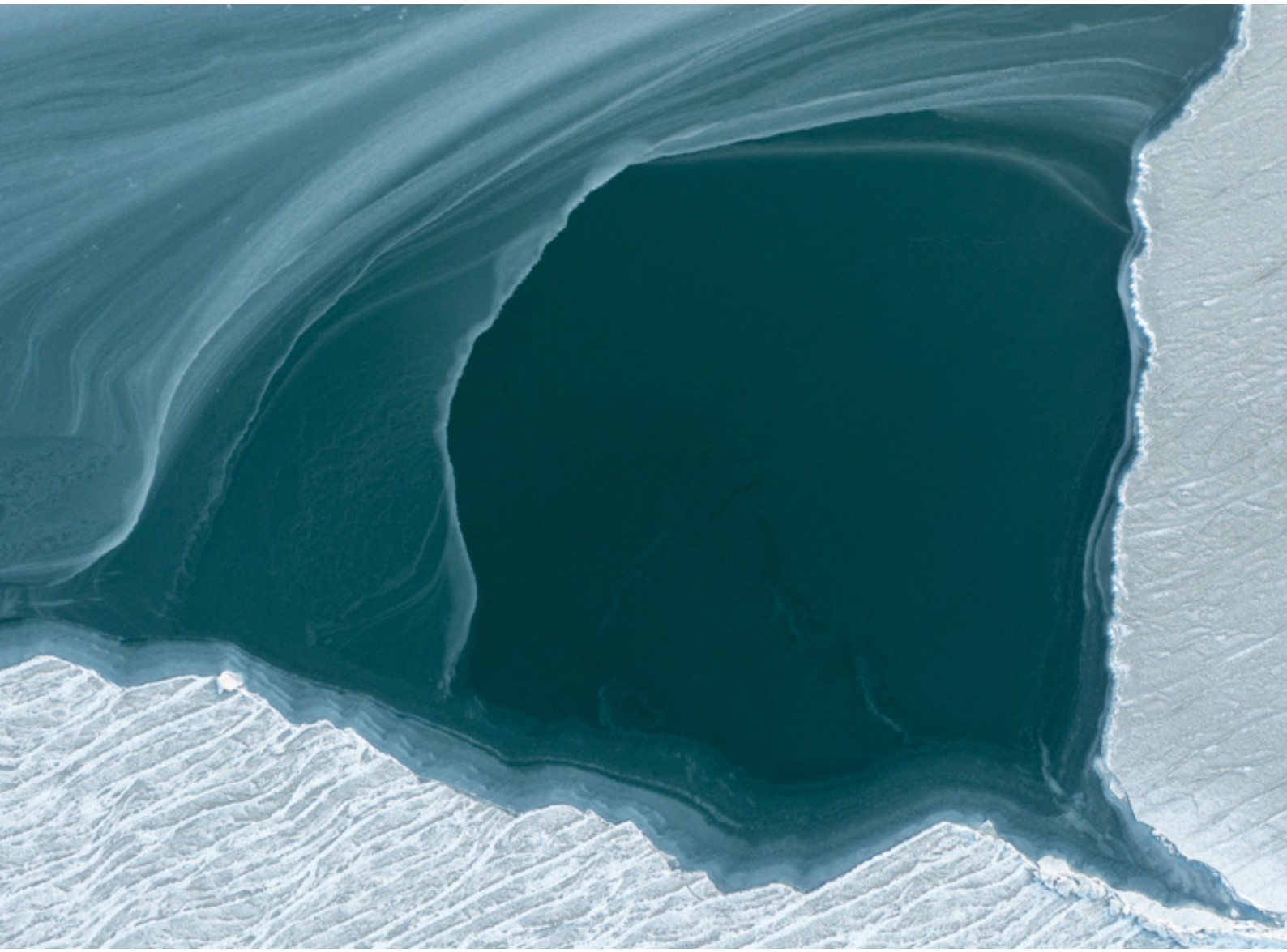
Percentage of companies by region in the Dow Jones Best-in-Class World Invited Universe conducting biodiversity risk assessments with the following scopes



Data as of Jan. 20, 2025.
Results based on responses from 2,375 companies assessed in the 2024 S&P Global Corporate Sustainability Assessment.
Source: S&P Global Sustainable1.

In the 2024 CSA, 42% of Japanese companies in the Dow Jones Best-in-Class World Invited Universe conducted a biodiversity risk assessment, which is slightly lower than the share of companies in Europe but higher than the rest of the Asia-Pacific region.

Most companies globally and in Japan focus primarily on biodiversity risks in their own operations, with reviews of adjacent areas, upstream risks and downstream risks occurring less often. While conducting these assessments can be more challenging as the distance from a company's own operations increases, they remain important because much of the impact occurs in the value chain. Raw material inputs such as crops and minerals require significant land use and often take place in parts of the world with significant ecosystems. Even the critical minerals necessary for the energy transition can pose threats to global biodiversity.



Conclusion

Overall, Japan is a leader in the Asia-Pacific region on many supply chain-related sustainability issues and compares favorably when benchmarked against global practices.

Usage of supplier codes of conduct to set a baseline for mitigating sustainability risks at suppliers is common practice in Japan. Japanese companies more often include biodiversity impact requirements in their codes of conduct, an element of corporate risk management that is less common in most of the world. Japanese firms are also advanced in terms of climate risk assessment and setting net-zero targets.

There are also areas for improvement, particularly in the adoption of supplier screening practices. With only 28% of Japanese companies conducting supplier screenings, there is room for organizations to enhance their risk management processes. By identifying suppliers that could pose significant sustainability risks, companies can better mitigate potential negative impacts on their operations and reputations. This proactive approach is becoming more important amid increasing scrutiny from regulators and investors regarding corporate sustainability practices.

Integrating climate goals throughout supply chains remains a challenge for companies around the world, including in Japan. While a substantial proportion of Japanese companies have set net-zero targets, the inclusion of Scope 3 emissions in these commitments remains low. As climate-related risks become more pronounced, companies can become more resilient by expanding their focus beyond direct operations to consider whether their supply chains can withstand climate impacts.

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